Claims

1. A system accessing and transmitting different data frames in a digital transmission network for accessing and transmitting different data frames, comprising:

at least a subscriber network interface, which is used to couple with the subscriber's network; and/or at least an inter-network interface, which is used to couple with said digital transmission network to transfer data; and

a data converting device, which is coupled with said subscriber network interfaces and said inter-network interfaces to convert data formats between said subscriber network interfaces, data formats between said inter-network interfaces, or data formats between said inter-network interfaces and said subscriber network interfaces;

Wherein said data converting device comprises a virtual private device, an interface device and a processing device, said virtual private device exchanges data between said subscriber network interfaces and said inter-network interfaces via said interface device, and said virtual private device comprises an inter-device interface, which couples with said processing device and is used to input and output data frames; a virtual private processing unit, which couples with said inter-device interface and is used to converge or deconverge the data frames and detect control messages; a rule database, which couples with said virtual private processing unit, said rule database stores rules corresponding to various data, couples with said virtual interface processing unit to process the data according to said rules; a control interface unit, which couples with said rule database and said virtual private processing unit and is used to control said virtual private processing unit and said rule database.

2. A virtual private device in a digital transmission network according to claim 1, wherein said rule database stores convergence rule and deconvergence rule.

3. A virtual private device in a digital transmission network according to claim 2, wherein said rule database stores relay rules.

4. A virtual private device in a digital transmission network according to any of claim 1 to 3, wherein one data type corresponds to one rule, rule database comprises the following rules: input data frame type number, rule type (one of convergence, deconvergence and relay rules), label number and output data frame type number.

5. A virtual private device in a digital transmission network according to claim 1, wherein formats of the control messages and the logic processing said data frames are stored in said virtual private processing unit; and formats of rules are stored in said rule database.

6. A virtual private device in a digital transmission network according to claim 1, wherein said control interface unit provides an external control interface, through which to inspect the operation of the virtual processing unit, and add, delete, modify, and search operation can be performed to rules in said rule databases.

7. A method of accessing and transmitting data frames in a digital transmission network for a virtual private device according to claim 1, wherein said interface device is a virtual interface device, said processing device is a data processing and dispatching device, said inter-device interface connects with said data processing and dispatching device or said virtual interface device.

8. A method of accessing and transmitting different data frames in a digital transmission network through said virtual private device, comprising the following steps:

Data frames entering said virtual private device via an inter-device interface;

determining whether the data frames are control messages;

If yes, sending the data frames to external control system via the control interface unit and end the process; If not, extracting input data type number information and search in the rule database according to said input data type number;

Determining whether type number information is found;

If not, discarding said data frames and end the process;

If yes, processing the data according to the rule type;

Modifying the data frames, and sending them through the inter-device interface and ending the process.

9. A method according to claim 8, wherein the step of processing the data according to the rule type comprises the following steps:

Determine the rule type,

If it is convergence rule, insert the label number defined in the rule in the special position of the data frames;

If it is deconvergence rule, remove the label number in the special position of the data frames;

If it is relay rule, change the label number in the special position of the data frames into a label number defined in the rule.

10. A method according to claim 9, wherein the step of modifying

the data frames comprises the step of replacing the data frame type number in the head position of the data frames with the output data frame type number defined in the rule.